

INEQUALITIES REVIEW

Solve. State the solution in interval notation.

1. $x^2 - 6x - 27 < 0$

2. $2x^2 + x \geq 15$

3. $\frac{x+8}{x+5} < 0$

4. $\frac{x+1}{x+3} \leq 2$

5. $\frac{3}{x+3} - \frac{3}{x-2} > 0$

6. $\frac{x^2 + 2x - 10}{x} > 0$

7. $\frac{(x-3)^2(x+7)}{(x-1)^3} \leq 0$

8. $\frac{5}{x^2 - 4x + 6} > 0$

9. $|4x - 3| \geq 11$

10. $5|4x + 2| - 2 \leq 28$

11. $|3x - 4| < 6x + 2$

12. $5^{1.5-x} \leq 25$

13. $\ln \sqrt{x+1} < 2$

14. $\log_3(x+4) - \log_3(x-1) \geq 2$

15. $\log_7 x + \log_7(x-7) > \log_7 8$

16. $4^{x-5} > 7$

ANSWERS

1. $(-3, 9)$

2. $(-\infty, -3] \cup [5/2, \infty)$

3. $(-8, -5)$

4. $(-\infty, -5] \cup (-3, \infty)$

5. $(-3, 2)$

6. $(-1 - \sqrt{11}, 0) \cup (-1 + \sqrt{11}, \infty)$

7. $[-7, 1) \cup [3]$

8. $(-\infty, \infty)$

9. $(-\infty, -2] \cup [7/2, \infty)$

10. $[-2, 1]$

11. $\left(\frac{2}{9}, \infty\right)$

12. $\left[-\frac{1}{2}, \infty\right)$

13. $(-1, e^4 - 1)$

14. $\left(1, \frac{13}{8}\right]$

15. $(8, \infty)$

16. $(5 + \log_4 7, \infty)$